

WHAT IS CLAIMED IS:

1. A structure of a color filter for use in a liquid crystal display, the color filter structure comprising:

- 5 a substrate;
- an indium tin oxide layer on the substrate;
- a silicon nitride layer on the indium tin oxide layer, wherein a value of an RF power used for growing the silicon nitride layer is a first power value;
- an amorphous silicon layer located on the silicon nitride layer;
- 10 an n-type silicon layer located on the amorphous silicon layer; and
- a metal layer on the n-type silicon layer, wherein a light is emitted into the color filter from the substrate, and after sequentially passing through the substrate, the indium tin oxide layer, the silicon nitride layer, the amorphous silicon layer, and the n-type silicon layer, the light is reflected by the metal layer
- 15 to be transmitted along an original path for leaving the color filter, wherein the light is absorbed and interfered with by the indium tin oxide layer, the silicon nitride layer, the amorphous silicon layer and the n-type silicon layer, the light being filtered into a specific color light after being emitted from the color filter.

20 2. The structure of claim 1, wherein a material of the substrate is glass.

 3. The structure of claim 1, wherein a material of the metal layer comprises chromium.

4. The structure of claim 3, wherein when the color filter is a black matrix, a thickness of the indium tin oxide layer is about 420 Å, a thickness of the silicon nitride layer is about 500 Å, a thickness of the first power value is about 1.6 KW, a thickness of the amorphous silicon layer is about 500 Å, a thickness of the n-type silicon layer is about 500 Å, and a thickness of the metal layer is about 780 Å.

5. The structure of claim 3, wherein when the color filter is a reflective blue color filter, a thickness of the indium tin oxide layer is about 420 Å, a thickness of the silicon nitride layer is about 500 Å, a thickness of the first power value is about 2.1 KW, a thickness of the amorphous silicon layer is about 500 Å, a thickness of the n-type silicon layer is about 500 Å, and a thickness of the metal layer is about 780 Å.

6. The structure of claim 3, wherein when the color filter is a reflective green color filter, a thickness of the indium tin oxide layer is about 168 Å, a thickness of the silicon nitride layer is about 300 Å, a thickness of the first power value is about 1.6 KW, a thickness of the amorphous silicon layer is about 500 Å, a thickness of the n-type silicon layer is about 500 Å, and a thickness of the metal layer is about 780 Å.

7. The structure of claim 3, wherein when the color filter is a reflective red color filter, a thickness of the indium tin oxide layer is about 420 Å, a thickness of the silicon nitride layer is about 400 Å, a thickness of the first power value is about 2.1 KW, a thickness of the amorphous silicon layer is about 400 Å, a

thickness of the n-type silicon layer is about 400 Å, and a thickness of the metal layer is about 780 Å.

8. The structure of claim 3, wherein when the color filter is a reflective red color filter, a thickness of the indium tin oxide layer is about 168 Å, a thickness of the silicon nitride layer is about 400 Å, a thickness of the first power value is about 1.6 KW, a thickness of the amorphous silicon layer is about 400 Å, a thickness of the n-type silicon layer is about 400 Å, and a thickness of the metal layer is about 780 Å.

9. A structure of a color filter for using in a liquid crystal display, the color filter structure comprising:

a substrate;

a silicon nitride layer on the substrate, wherein a value of an RF power used for growing the silicon nitride layer is a first power value;

an amorphous silicon layer on the silicon nitride layer;

an n-type silicon layer on the amorphous silicon layer; and

a metal layer on the n-type silicon layer, wherein a light is emitted into the color filter from the substrate, and after sequentially passing through the substrate, the silicon nitride layer, the amorphous silicon layer, and the n-type silicon layer, the light is reflected by the metal layer to be transmitted along an original path for leaving the color filter, wherein the light is absorbed and interfered with by the silicon nitride layer, the amorphous silicon layer and the n-type silicon layer, the light being filtered into be a specific color light after being emitted from the color filter.

10. The structure of claim 9, wherein a material of the substrate is glass.

11. The structure of claim 9, wherein a material of the metal layer
5 comprises chromium.

12. The structure of claim 11, wherein when the color filter is a reflective
high-brightness red color filter, a thickness of the silicon nitride layer is about
500 Å, a thickness of the first power value is about 1.6 KW, a thickness of the
10 amorphous silicon layer is about 400 Å, a thickness of the n-type silicon layer is
about 400 Å, and a thickness of the metal layer is about 780 Å.

13. The structure of claim 11, wherein when the color filter is a reflective
high-brightness green color filter, a thickness of the silicon nitride layer is about
15 500 Å, a thickness of the first power value is about 1.6 KW, a thickness of the
amorphous silicon layer is about 500 Å, a thickness of the n-type silicon layer is
about 500 Å, and a thickness of the metal layer is about 780 Å.

14. A structure of a color filter for using in a liquid crystal display, the
20 color filter structure comprising:

a substrate;

a metal layer on the substrate;

an n-type silicon layer on the metal layer

an amorphous silicon layer on the n-type silicon layer;

an silicon nitride layer on the amorphous layer, wherein a value of an RF power used for growing the silicon nitride layer is a first power value; and

an indium tin oxide layer on the silicon nitride layer, wherein a light is emitted into the color filter from the indium tin oxide layer, and after sequentially passing through the indium tin oxide layer, the silicon nitride layer, the amorphous silicon layer, and the n-type silicon layer, the light is reflected by the metal layer to be transmitted along an original path for leaving the color filter, wherein the light is absorbed and interfered with by the indium tin oxide layer, the silicon nitride layer, the amorphous silicon layer and the n-type silicon layer, the light being filtered into a specific color light after being emitted from the color filter.

15. The structure of claim 14, wherein a material of the metal layer comprises chromium.

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16. The structure of claim 15, wherein when the color filter is a black matrix, a thickness of the indium tin oxide layer is about 420 Å, a thickness of the silicon nitride layer is about 500 Å, a thickness of the first power value is about 1.6 KW, a thickness of the amorphous silicon layer is about 500 Å, a thickness of the n-type silicon layer is about 500 Å, and a thickness of the metal layer is about 780 Å.

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17. The structure of claim 15, wherein when the color filter is a reflective blue color filter, a thickness of the indium tin oxide layer is about 420 Å, a thickness of the silicon nitride layer is about 500 Å, a thickness of the first power

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value is about 2.1 KW, a thickness of the amorphous silicon layer is about 500 Å, a thickness of the n-type silicon layer is about 500 Å, and a thickness of the metal layer is about 780 Å.

5 18. The structure of claim 15, wherein when the color filter is a reflective green color filter, a thickness of the indium tin oxide layer is about 168 Å, a thickness of the silicon nitride layer is about 300 Å, a thickness of the first power value is about 1.6 KW, a thickness of the amorphous silicon layer is about 500 Å, a thickness of the n-type silicon layer is about 500 Å, and a thickness of the
10 metal layer is about 780 Å.

 19. The structure of claim 15, wherein when the color filter is a reflective red color filter, a thickness of the indium tin oxide layer is about 420 Å, a thickness of the silicon nitride layer is about 400 Å, a thickness of the first power
15 value is about 2.1 KW, a thickness of the amorphous silicon layer is about 400 Å, a thickness of the n-type silicon layer is about 400 Å, and a thickness of the metal layer is about 780 Å.

 20. The structure of claim 15, wherein when the color filter is a reflective
20 red color filter, a thickness of the indium tin oxide layer is about 168 Å, a thickness of the silicon nitride layer is about 400 Å, a thickness of the first power value is about 1.6 KW, a thickness of the amorphous silicon layer is about 400 Å, a thickness of the n-type silicon layer is about 400 Å, and a thickness of the metal layer is about 780 Å.

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21. A structure of a color filter for using in a liquid crystal display, the color filter structure comprising:

a substrate;

a metal layer on the substrate;

5 an n-type silicon layer on the metal layer

an amorphous silicon layer on the n-type silicon layer; and

an silicon nitride layer on the amorphous layer, wherein a value of an RF power used for growing the silicon nitride layer is a first power value, a light is emitted into the color filter from the silicon nitride layer, and after sequentially
10 passing through the silicon nitride layer, the amorphous silicon layer, and the n-type silicon layer, the light is reflected by the metal layer to be transmitted along an original path for leaving the color filter, wherein the light is absorbed and interfered with by the silicon nitride layer, the amorphous silicon layer and the n-type silicon layer, the light being filtered into a specific color light after
15 being emitted from the color filter.

22. The structure of claim 21, wherein a material of the metal layer comprises chromium.

20 23. The structure of claim 21, wherein when the color filter is a reflective high-brightness red color filter, a thickness of the silicon nitride layer is about 500 Å, a thickness of the first power value is about 1.6 KW, a thickness of the amorphous silicon layer is about 400 Å, a thickness of the n-type silicon layer is about 400 Å, and a thickness of the metal layer is about 780 Å.

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24. The structure of claim 21, wherein when the color filter is a reflective high-brightness green color filter, a thickness of the silicon nitride layer is about 500 Å, a thickness of the first power value is about 1.6 KW, a thickness of the amorphous silicon layer is about 500 Å, a thickness of the n-type silicon layer is about 500 Å, and a thickness of the metal layer is about 780 Å.